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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/729,105	12/05/2000	Yu-Jung Cheng	EM/CHENG/6272	6408

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Alexandria, VA 22314-1176

EXAMINER
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SHAW, JOSEPH D

ART UNIT	PAPER NUMBER
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2141

DATE MAILED: 03/26/2004

2

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

09/729,105

Applicant(s)

CHENG, YU-JUNG

S

Examiner

Joseph D Shaw

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 December 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☒ Claim(s) 4-5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 December 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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**DETAILED ACTION**

***Requirement for Information***

1. Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application.

2. The information is required to extend the domain of search for prior art. Limited amounts of art related to the claimed subject matter are available within the Office. A broader range of art to search is necessary to establish the level of knowledge of those of ordinary skill in the claimed subject matter art of:

- a. updating the state of a virtual reality scene;
- b. defining areas of interest; and
- c. dividing in an interlaced square division manner.

3. In responding to those requirements that require copies of documents, where the document is a bound text or a single article over 50 pages, the requirement may be met by providing copies of those pages that provide the particular subject matter indicated in the requirement, or where such subject matter is not indicated, the subject matter found in applicant's disclosure.

4. The applicant is reminded that the reply to this requirement must be made with candor and good faith under 37 CFR 1.56. Where the applicant does not have or cannot readily obtain an item of required information, a statement that the item is unknown or cannot be readily obtained will be accepted as a complete reply to the requirement for that item.

5. This requirement is included with the below Office action. A complete reply to the enclosed Office action must include a complete reply to this

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requirement. The time period for reply to this requirement coincides with the time period for reply to the enclosed Office action.

#### ***Specification***

6. The disclosure is objected to because of the following informalities:
  - d. In line 5 of the Abstract, "an user" should be replaced with "a user."
  - e. In lines 10-14 of the abstract, several errors not conforming to correct idiomatic English are present.
  - f. In line 24 of page 1 and line 17 of page 2, "people is connected" should be replaced with "people are connected."
  - g. In line 4 of page 4, "AIO" should be replaced with "AOI."Appropriate correction is required.

#### ***Drawings***

7. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the transmission of the message updating the virtual reality as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d).
8. Addition, the drawings must show every feature of the invention specified in the claims. Therefore, the transmission of the message updating the virtual reality must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
9. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

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***Claim Objections***

10. Claims 1 objected to because of the following informalities:

h. In claim 1, lines 7, "an user" should be replaced with "a user."

i. In claim 1, lines 13-16, several errors not conforming to correct idiomatic English are present.

j. In claim 5, line 6, "being to set" should be replaced with "being set."

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

11. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

12. Claims 1 and 3 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

k. Claim 1 states the limitation:

"transmitting a message to update state of virtual reality based on different settings of the low interactive area of interest and the high interactive area of interest when the virtual reality environment reaches a predetermined inconsistency."

While the specification teaches transmitting a message, there is no reference, that one of ordinary skill in the art at the time of the invention would recognize, to who or what is transmitting the message.

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This raises the question on how the state of the virtual reality is actually updated.

1. Claim 3 states the limitation:

"...the virtual scene and block are divided in an interlaced square division manner."

While the specification teaches using the interlaced square division manner, there is no reference, that one of ordinary skill in the art at the time of the invention would recognize, to what exactly an interlaced square division manner is and how it would be implemented.

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claims 4-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

m. Claim 4 recites the limitation "the count" in line 24. There is insufficient antecedent basis for this limitation in the claim.

n. The term "relatively" in claims 4-5 is a relative term which renders the claim indefinite. The term "relatively" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

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***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Culler et al. (Parallel Computer Architecture: A Hardware/Software Approach) in view of Leiserson et al. (The Network Architecture of the Connection Machine CM-5).

o. As per claim 1, Culler teaches:

dividing a virtual scene into a plurality of blocks for determining an area on interest (domain is partitioned so that most information requirements are assigned and satisfied within the partition);

defining a block where a user is in and blocks neighboring to the block as a low interactive area of interest (with most information requirements satisfied within the partition, little communication is required outside, defining a low area of interest);

dividing each block of the low interactive area of interest into a plurality of sub-blocks (each partition is partitioned into a grid or sub-grid of tasks (users, sub-blocks) that requires communication); and

defining a sub-block where a user is in and sub-blocks neighboring to the sub-block as a high interactive area of

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interest (every point on the grid needs information from its nearest neighbors, and are therefore highly interested in that area; increasing the distance from the point decreases the communications requirement (decreases area of interest); Section 3.1.2, Reducing Inherent Communication, pages 131-133; Fig. 3.4).

However, the Culler invention does not explicitly teach transmitting a message to update the state of the virtual scene based on various settings of the low interactive area of interest and the high interactive area of interest when the virtual reality environment reaches a predetermined inconsistency. Leiserson teaches of a data network that detects faulty processors, network chips, or interconnection links and can map out the fault and quarantine it (page 6, lines 24-31). It would have been obvious to one of ordinary skill in the art at the time of the invention to recognize that the processors and network chips in the Leiserson invention are similar to the various interactive areas of interests in the Culler invention (depending on their distance from a node) and to apply the Leiserson method of detecting faults (predetermined inconsistencies) and mapping them out (update the virtual reality scene) towards the Culler invention because the rest of the network can then ignore signals involved with the mapped out portion of the network (virtual scene) and the network can remain functional while servicing and testing, or even powering down, the mapped out portion, as taught by Leiserson (page 6, lines 24-31).



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p. As per claim 2, Culler discloses the claimed invention as described above and furthermore teaches:

the virtual scene and blocks being divided in a square division manner (Fig. 3.4).

q. As per claim 3, Culler discloses the claimed invention as described above and furthermore teaches:

the virtual scene and blocks being divided in an interlaced square division manner (each block/sub-block is interlaced (requires communication) with the one next to it; Fig. 3.4 and associated caption).

#### ***Allowable Subject Matter***

17. Claims 4-5 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim, provided the base claim was also rewritten to overcome the rejection(s) under 35 U.S.C. 112 set forth in this Office action, and any intervening claims.

#### ***Conclusion***


18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D Shaw whose telephone number is 703-305-0094. The examiner can normally be reached on Monday - Thursday and alternate Fridays, 7am - 4pm.

19. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharra can be reached on 703-305-4003. The fax

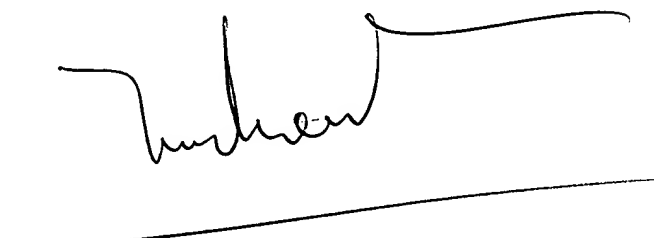
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phone number for the organization where this application or proceeding is assigned is 703-872-9306.

20. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Joseph Shaw  
Examiner  
AU 2141



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PRIMARY EXAMINER